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NLP Homework 5 – q8

Q:

Design two new relation groups and come up with three questions for each group (six total).
All words for all
questions should appear in your word2vec vocabulary. On CrowdMark, below, report how well the two sets
of embeddings perform on your test questions. You're encouraged to be adversarial so that the embeddings
for your relation groups might get an accuracy of zero! Discuss any interesting observations you have made
in the process.

A:

2 new groups-

: ABBR
info information thx thanks
dr doctor tv television
mt mountain cuz because

: PAST_TENSE
win won go gone
play played live lived
pass passed run ran

Accuracy-

```
Console ✕   PyUnit   Hierarchy View
<terminated> q7.py [C:\Anaconda\python.exe]


1 NEGATIVE EXAMPLE FROM EACH GROUP( Element3: Incorrect Prediction / Correct Value):

superlative          Predicted / Actual :  bad : worst :: good/great : greatest
city-in-state        Predicted / Actual :  houston : texas :: newark/seattle : washington
family               Predicted / Actual :  boy : girl :: sons/brothers : sisters
adjective-to-adverb  Predicted / Actual :  complete : completely :: regular/most : mostly
currency             Predicted / Actual :  brazil : real :: wins/korea : won
nationality-adjective Predicted / Actual : china : chinese :: language/england : english
capital              Predicted / Actual :  baghdad : iraq :: queens/london : england
comparative          Predicted / Actual :  bad : worse :: good/great : greater
PAST_TENSE           Predicted / Actual :  pass : passed :: fly/run : ran
ABBR                 Predicted / Actual :  info : information :: brings/thx : thanks


GROUPS SORTED BY REASONING ACCURACY:
family               Accuracy: 0.705
PAST_TENSE           Accuracy: 0.667
comparative          Accuracy: 0.533
nationality-adjective Accuracy: 0.453
superlative          Accuracy: 0.429
city-in-state        Accuracy: 0.333
ABBR                 Accuracy: 0.333
currency             Accuracy: 0.1
capital              Accuracy: 0.083
adjective-to-adverb  Accuracy: 0.011



                      TOP_1   TOP_5   TOP_10
superlative           0.429   0.762   0.81
city-in-state         0.333   0.611   0.833
family                0.705   0.91    0.968
adjective-to-adverb   0.011   0.122   0.222
currency              0.1     0.1     0.1
nationality-adjective 0.453   0.744   0.872
capital               0.083   0.583   0.75
comparative           0.533   0.762   0.8
PAST_TENSE            0.667   0.667   0.667
ABBR                  0.333   0.333   0.333
```

In last chart, we see the TOP_1, TOP_5, TOP_10 accuracy of new groups: ABBR, PAST_TENSE.

The accuracies we see for them can be attributed to terms which tend to appear frequently in the same context. It was difficult to be find 0 accuracy in the domain I had chosen due to lack to words in VOCAB file.

However I understand this scenario would arrive when the ACTUAL value does not exist in any of the top 10 words returned by my algorithm; which can mean the

My ACTUAL vector lies out of range of W4 + (DIFFERENCE zone between W1 AND W2)